Claims

What is claimed is:

1. A method comprising:

determining one or more electrical characteristics associated with the operation of a digital PWM amplifier; and

adjusting relative timing between a high-side signal and a low-side signal in the digital PWM amplifier to optimize dead time and shoot-through current in the digital PWM amplifier.

2. The method of claim 1, wherein determining the one or more electrical characteristics associated with the operation of the digital PWM amplifier comprises measuring a differential current at an output of the PWM amplifier.

3. The method of claim 2, further comprising providing the high-side signal and the low-side signal to an output stage driver, wherein each of the high-side signal and the low-side signal has a 50% duty cycle and wherein the relative timing between the high-side signal and the low-side signal is adjusted to minimize the differential current.

4. The method of claim 1, wherein determining the one or more electrical characteristics associated with the operation of the digital PWM amplifier comprises measuring a shoot-through current in the PWM amplifier.

5. The method of claim 4, wherein determining the one or more electrical characteristics associated with the operation of the digital PWM amplifier further comprises measuring distortion in an output signal produced by the PWM amplifier.

6. The method of claim 1, wherein determining the one or more electrical characteristics associated with the operation of the digital PWM amplifier comprises measuring distortion in an output signal produced by the PWM amplifier.

7. A system comprising:

a PWM modulator;

a driver;

an output stage; and

feedback circuitry;

wherein the driver is coupled between the PWM modulator and the output stage, wherein the driver is configured to receive high-side and low-side PWM signals from the PWM modulator and to drive the high-side and low-side PWM signals to the output stage;

wherein the feedback circuitry is coupled between the output stage and the PWM modulator, wherein the feedback circuitry is configured to provide feedback associated with dead time and shoot-through current in the output stage to the PWM modulator; and

wherein the PWM modulator is configured to adjust the relative timing of the high-side and low-side PWM signals in response to the feedback to optimize the dead time and shoot-through current in the output stage.

8. The system of claim 7, wherein the feedback circuitry is configured to measure a differential current at an output of the output stage.

9. The system of claim 8, wherein the PWM modulator is configured to provide each of the high-side signal and the low-side signal at a 50% duty cycle, and to adjust the relative timing between the high-side signal and the low-side signal to minimize the differential current at the output of the output stage.

10. The system of claim 7, wherein the feedback circuitry is configured to measure shoot-through current in the output stage.

11. The system of claim 10, wherein the feedback circuitry includes a resistor coupled in series with a pair of output stage transistors, and a comparator configured to measure a voltage drop across the resistor and compare the measured voltage drop to a threshold level.

12. The system of claim 10, wherein the feedback circuitry is configured to measure distortion in an output signal produced by the output stage.

13. The system of claim 12, wherein the feedback circuitry includes distortion circuitry configured to measure one or more harmonics of the output signal produced by the output stage.

14. The system of claim 7, wherein the feedback circuitry is configured to measure distortion in an output signal produced by the output stage.